

What is claimed is

1. A method for producing encapsulated chips, comprising:

5 preparing wafer with contacts projecting from a surface of the wafer;

arranging the wafer on a dicing substrate ;

10 dicing the wafer to generate a plurality of chips spaced from each other via trenches on the dicing substrate;

15 conducting injection molding to introduce an encapsulation material between the contacts and into the trenches, whereby the chips arranged on the dicing substrate are encapsulated; and

20 creating a redistribution structure of an electrically conductive material on a portion formed by the encapsulation material.

25 2. The method of claim 1, further including, prior to conducting the injection molding, covering the contacts with the protection arrangement and, after conducting injection molding, removing the protection arrangement so that the contacts are exposed.

30 3. The method of claim 2, wherein the step of injection molding comprises:

35 arranging the plurality of chips on the dicing substrate in an injection mold so that a cavity is formed by the protection arrangement and the injection mold; and

injecting encapsulation material into the cavity formed by the protection arrangement and the injection

mold so that the cavity is filled with the encapsulation material.

4. The method of claim 3, wherein the cavity comprises a vacuum prior to conducting injection molding.
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10. The method of claim 1, wherein the injection molding is conducted such that the surface of the encapsulation material is flush with the surface of the contacts after injection molding.
15. The method of claims 2, further comprising the step of pressing the protection arrangement onto the contacts.
20. The method of claim 2, wherein the protection arrangement includes a film, a delaminable layer applied to the contacts, or a portion of the injection mold.
25. The method of claim 1, wherein the step of dicing further comprises enlarging a distance between the chips on the dicing substrate by means of a treatment of the dicing substrate for enlarging the surface of the dicing substrate.
30. The method of claim 8, wherein the step of enlarging the distance between the chips includes stretching the dicing substrate.
35. The method of claim 1, further comprising the step of producing a redistribution contact projecting from the redistribution structure.
11. The method of claim 1, wherein functional structures are formed in the step of injection molding.

12. The method of claim 11, wherein the functional structure is selected from the group including a recess, a V-notch, and a protrusion.

5 13. The method of claim 12, wherein the protrusion is formed in the step of injection molding, the method further including the step of applying an electrically conductive layer to the protrusion for forming an electrical contact.

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14. The method of claim 11, wherein the functional structure includes an adjustment marking, a structure for assembly assistance, or a structure for arranging an optical guide.

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15. The method of claim 1, further comprising the step of creating a via in the encapsulation material.

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16. The method of claim 15, wherein the step of creating a via comprises the step of arranging an electrically conductive pin in the trenches so that the pin is lined by the encapsulation material in the step of injection molding.

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17. The method of claim 1, wherein another redistribution structure in addition to the one redistribution structure is provided on a second surface of the wafer, which opposes the surface on which the contacts are formed.

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18. The method of claim 1, wherein functional units are assembled on the surface of the wafer prior to encapsulating.

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19. A method of producing a stack of encapsulated chips, comprising:

producing first encapsulated chips according to claim 1;

5 producing second encapsulated chips according to claim 1; and

arranging the first encapsulated chips above the second encapsulated chips so that a stack of encapsulated chips is formed.

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20. The method of claim 19, further comprising:

15 creating a first pass-through conductor in a portion of the first encapsulated chips, which comprises the encapsulation material;

creating a second pass-through conductor (in a portion of the second encapsulated chips, which comprises the encapsulation material; and

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arranging a connection contact between the first pass-through conductor and the second pass-through conductor, whereby they are electrically connected.